# BBNA Tribal Energy Efficiency & Conservation Block Grant Program

**Administered by Alaska Building Science Network**

## Clark's Point Final Report



**Community Summary**

Three (3) buildings and one (1) facility owned by the Clark's Point Village Council and 24 Tribal Member owned households received energy efficient lighting upgrades:

Community Center
Office Building
Old Clinic
Tank Farm
24 Tribal Homes

Retrofits Completed: August 2012

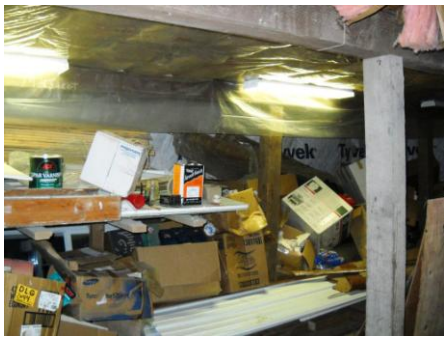
**Village-Wide Energy Efficient Lighting Retrofit Summary:**

- Retrofitted 43 fluorescent light fixtures with electronic ballasts & T8 lamps
- Installed 3 compact fluorescent light bulbs
- Installed 146 LED A19 light bulbs
- Installed 2 LED exterior light fixtures
- Projected Annual Electrical Savings (kWh): 18,955
- Total Projected Annual Energy Cost Savings: **$10,425**[1]
- Total village-wide In-kind contribution: $4,133
- Total project cost including In-kind contributions: $36,057
- Simple Payback (including In-kind contributions): **3.47 years**

[1] kWh Rate [used to calculate electrical cost savings] for Lighting Measures (State of AK - AEA PCE Program Report FY 2011 avg.): $0.55

## Office Building

**Lighting Retrofit Summary**:



| Materials Installed | Quantity |
|---|---|
| Fluorescent 2-lamp electronic ballast, (2) 25 watt T8 lamps | 6 |
| Fluorescent 2-lamp electronic ballast, (2) 32 watt T8 lamps | 5 |
| CFL-27 W | 1 |

- Pre-retrofit energy use: 0.999 kW
- Post-retrofit energy use: 0.603 kW
- Energy savings projection: 0.396 kW
- Pre-retrofit to post retrofit energy reduction: 40 percent
- Estimated Annual Savings: 693 kWh

| Hours/day (250 days/year) | Electrical Savings ($) | Avoided Diesel (gal) | Avoided Diesel ($) |
|---|---|---|---|
| 4 Hours/day | $217.80 | 32.12 | $113.69 |
| **7 Hours/day** | **$381.15** | **56.20** | **$198.96** |
| 10 Hours/day | $544.50 | 80.29 | $284.23 |
| 2,000 Hours/year | $435.60 | 64.23 | $227.39 |

**Community Center**

**Lighting Retrofit Summary**:



| **Materials Installed** | **Quantity** |
|---|---|
| Fluorescent 2-lamp electronic ballast, (2) 25 watt T8 lamps | 6 |
| Fluorescent 4-lamp electronic ballast, (4) 25 watt T8 lamps | 16 |
| CFL-23 W | 1 |
| CFL-27 W | 1 |

- Pre-retrofit energy use: 3.307 kW
- Post-retrofit energy use: 1.766 kW
- Energy savings projection: 1.541 kW
- Pre-retrofit to post retrofit energy reduction: 47 percent
- Estimated Annual Savings: 2,697 kWh

| Hours/day (250 days/year) | Electrical Savings | Avoided Diesel (gal) | Avoided Diesel ($) |
|---|---|---|---|
| 4 Hours/day | $847.55 | 124.98 | $442.43 |
| **7 Hours/day** | **$1,483.21** | **218.71** | **$774.25** |
| 10 Hours/day | $2,118.88 | 312.45 | $1,106.07 |
| 2,000 Hours/year | $1,695.10 | 249.96 | $884.86 |

**Old Clinic**

**Lighting Retrofit Summary**:

| **Materials Installed** | **Quantity** |
|---|---|
| Fluorescent 2-lamp electronic ballast, (2) 25 watt T8 lamps | 10 |

- Pre-retrofit energy use: 0.936 kW
- Post-retrofit energy use: 0.460 kW
- Energy savings projection: 0.476 kW
- Pre-retrofit to post retrofit energy reduction: 51 percent
- Estimated Annual Savings: 833 kWh

| Hours/day (250 days/year) | Electrical Savings ($) | Avoided Diesel (gal) | Avoided Diesel ($) |
|---|---|---|---|
| 4 Hours/day | $261.80 | 38.61 | $136.66 |
| **7 Hours/day** | **$458.15** | **67.56** | **$239.16** |
| 10 Hours/day | $654.50 | 96.51 | $341.65 |
| 2,000 Hours/year | $523.60 | 77.21 | $273.32 |

**24 Households LED A19 Bulbs**

**Lighting Retrofit Summary**:

| **Materials Installed** | **Quantity** |
|---|---|
| LED A19 bulb – 7 watt | 146 |

- Pre-retrofit energy use: 8.760 kW
- Post-retrofit energy use: 1.022 kW
- Energy savings projection: 7.738 kW
- Pre-retrofit to post retrofit energy reduction: 88 percent
- Estimated Annual Savings: 13,542 kWh

| Hours/day (250 days/year) | Electrical Savings ($) | Avoided Diesel (gal) | Avoided Diesel ($) |
|---|---|---|---|
| 4 Hours/day | $4,255.90 | 627.58 | $2,221.62 |
| **7 Hours/day** | **$7,447.83** | **1098.26** | **$3,887.83** |
| 10 Hours/day | $10,639.70 | 1568.94 | $5,554.04 |
| 2,000 Hours/year | $8,511.80 | 1255.15 | $4,443.23 |

*The **LED "A19"** screw-in style light bulb is among the latest technologies available for lighting energy efficiency. The bulb utilizes Light Emitting Diode (LED) technology which operates more efficiently than the standard Incandescent bulb or spiral-type Compact Fluorescent bulb (CFL). This "60 watt equivalent" LED A19 bulb uses **8 watts** to produce the same light output (lumens) as a **60 watt** incandescent bulb. This particular LED A19 also lasts up to 50,000 hours verses average 8,000 hours for a Compact Fluorescent bulb. In addition, this "outdoor rated" version will operate both in wet and cold weather conditions and will not struggle to turn on in winter.*

**Tank Farm**

**Total Savings All Measures:**

- Projected Annual Electrical Savings (kWh): 1,191
- Projected Annual Energy Cost Savings: $596

**Lighting Retrofit Summary**:

| **Materials Installed** | **Quantity** |
|---|---|
| LED Exterior Fixture – 52 watt | 2 |

- Pre-retrofit energy use: 0.376 kW
- Post-retrofit energy use: 0.104 kW
- Energy savings projection: 0.272 kW
- Pre-retrofit to post retrofit energy reduction: 72 percent
- Estimated Annual Savings: 1,191 kWh